City of Burien Shoreline Master Program

Cumulative Impacts Analysis

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Task 4.1

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1. Introduction

The Washington State *Shoreline Master Program Guidelines* state that local Shoreline Master Programs are required to "evaluate and consider" the cumulative impacts of reasonably foreseeable future development on shoreline ecological functions and other shoreline functions promoted by the Shoreline Management Act. The guidelines further state that "to ensure no net loss of ecological functions and protection of other shoreline functions and/or uses, master programs shall contain policies, programs, and regulations that address adverse cumulative impacts and fairly allocate the burden of addressing cumulative impacts among development opportunities."

Specifically, the guidelines state that the evaluation of cumulative impacts should consider:

i. Current circumstances affecting the shorelines and relevant natural processes;
ii. Reasonably foreseeable future development and use of the shoreline; and
iii. Beneficial effects of any established regulatory programs under other local, state, and federal laws.

Additionally, the guidelines indicate that an appropriate cumulative impacts analysis will also consider the effects of unregulated activities and development exempt from permitting on shoreline ecological functions and other shoreline functions and uses. Furthermore, the guidelines indicate that particular attention should be paid to policies and regulations concerned with the platting or subdividing of property, laying of utilities, and mapping of streets that establish a pattern for future development.

The guidelines note that methods for determining reasonably foreseeable future development may vary depending on local circumstances, including demographic and economic characteristics and the nature and extent of shorelines.

This cumulative impacts analysis is organized into five sections:

1. Introduction
2. Current Circumstances Affecting the Shorelines and Relevant Natural Processes
3. Reasonably Foreseeable Future Development and Use of the Shoreline
4. Beneficial Effects of Any Established Regulatory Programs Under Other Local, State, and Federal Laws
5. Cumulative Impacts Summary

2. Current Circumstances Affecting the Shorelines and Relevant Natural Processes

The City of Burien *Shoreline Inventory* and *Shoreline Analysis and Characterization* describe in-depth current circumstances affecting Burien's shorelines and relevant natural processes. This section of the cumulative impacts analysis references the shoreline reach-scale information documented in the *Shoreline Analysis and Characterization*. For more details regarding current circumstances affecting Burien's shorelines and relevant natural processes, please consult the *Shoreline Inventory* and *Shoreline Analysis and Characterization* documents.

In both of these documents, Burien's shorelines were divided into five lineal reaches according to land use and environmental characteristics (Table 2.1). The first four reaches are contiguous and together constitute Burien's shoreline situated along Puget Sound. The fifth reach consists of the Lake Burien shoreline.

Table 2.1. Shoreline Inventory Reaches in the City of Burien.

Location	Reach	Description	Approximate Length (ft)	Approximate Length (mi)
Marine	M1	Primarily residential marine shoreline extending south from city limit to the north edge of Seahurst Park.	6,001	1.14
Marine	M2	Seahurst Park and primarily undeveloped shoreline south to the point at which consistent shoreline residential development begins again. Corresponds to a line projected west from SW 149th Street to intersection with the shoreline.	6,382	1.21
Marine	M3	Consistent residential development extending south to the tip of Three Tree Point.	9,246	1.75
Marine	M4	Consistent residential development from the tip of Three Tree Point to the southern city limit.	7,597	1.44
		Marine Subtotal	*29,226*	*5.54*
Lake Burien	LB	Entire perimeter of Lake Burien	6,172	1.17
		Total Jurisdictional Shoreline	**35,429**	**6.71**

2.1 Marine Reaches

According to WAC 173-26-201(3)(d)(i)(C), shoreline ecological functions in marine waters include, but are not limited to:

- Hydrologic – Transporting and stabilizing sediment, attenuating wave and tidal energy, removing excessive nutrients and toxic compounds, recruitment, redistribution and reduction of woody debris and other organic material.

- Vegetation – Maintaining temperature, removing excessive nutrients and toxic compound, attenuating wave energy, sediment removal and stabilization, and providing woody debris and other organic matter.
- Habitat for aquatic and shoreline-dependent birds, invertebrates, mammals, amphibians, and anadromous and resident native fish – Habitat functions may include, but are not limited to, space or conditions for reproduction, resting, hiding and migration, and food production and delivery.

Reach-scale shoreline functions are described below for each of the marine reaches (Reach M1 through M4).

2.1.1 Reach M1

Reach M1 is the northernmost marine reach along the Burien shoreline, extending from Seola Beach to the north end of Seahurst Park. The reach is 1.14 miles in length. The following two aerial photos from July 2007 indicate the extent of primarily single-family development along the shoreline.

Reach M1 (North)

Reach M1 (South)

Historically, most of Reach M1 was exceptional or potential feeder bluff; now it is almost entirely modified shoreline as illustrated in the aerial photos. Additional summary information for Reach M1 is presented in Table 2.2.

Table 2.2. Reach M1 Summary.

Total Acreage/ Land Use[1]	Stream Discharges	Public Shoreline Access	Hazard Areas	Habitat/Habitat Potential
25.00 acres Single-family: 72% Vacant: 23% Tracts/Other: 4% Low Density MFR: 1% Institutional: 0.01%	Seola Creek, Salmon Creek, unnamed tributaries	None	Landslide, Flood	Wetlands, Stream, Fish and Wildlife Areas (salmonids, forage fish, shellfish, eelgrass, Urban Natural Open Space)

[1] Percentages may not total 100 percent due to rounding during GIS analysis.

Current Land Use

This reach is predominantly single-family use, with portions of undeveloped property associated with high gradient slopes and vacant parcels comprising approximately 24 percent of the reach.

Hydrologic Function

The shoreline of Reach M1 is primarily residential, and much of the shoreline is hardened by private bulkheads and boat ramps. These structures affect the hydrological functions of the shoreline, altering the transportation of sediment to and from the shoreline reach. Woody debris and organic material redistribution is restricted to the shoreline area waterward of the bulkheads.

Freshwater input is limited to that from Seola and Salmon Creeks and unnamed tributaries entering Puget Sound from the uplands adjacent to the shoreline. In some cases, small culverts or pipes drain freshwater from the upland through existing armored structures into Puget Sound.

Approximately 70 percent of Reach M1 is mapped as 100-year floodplain. Armoring of the shoreline can contribute to impacts of flooding, as an artificial physical boundary can impede the flow during inundation and recession of floodwater.

Vegetation Function

Vegetation along Reach M1 is also influenced by the existing land use in that much of the upland consists of the manicured yards of residential properties. Marine shorelines with highly altered vegetation are not as effective in removing excess nutrients, stabilizing sediment, and contributing organic matter as unmodified shorelines. However, any trees along the shoreline, whether native or part of a landscaped yard, contributes to overwater shading of the intertidal zone.

Additionally, the entire reach is mapped as a landslide hazard area, a Critical Area type. Removal of shoreline vegetation, such as that resulting from development, leads to erosion of the shoreline and may contribute to landslide activity.

Other Habitat Function

Critical Areas within this reach include the southerly bank and buffer of Seola Creek, Salmon Creek and associated buffers, and several small unnamed tributaries to Puget Sound. The forested ravines associated with these streams are mapped as Urban Natural Open Space, a Priority Habitat in Washington State. Deep forested ravines and the associated streams provide small mammal, bird, and fish habitat.

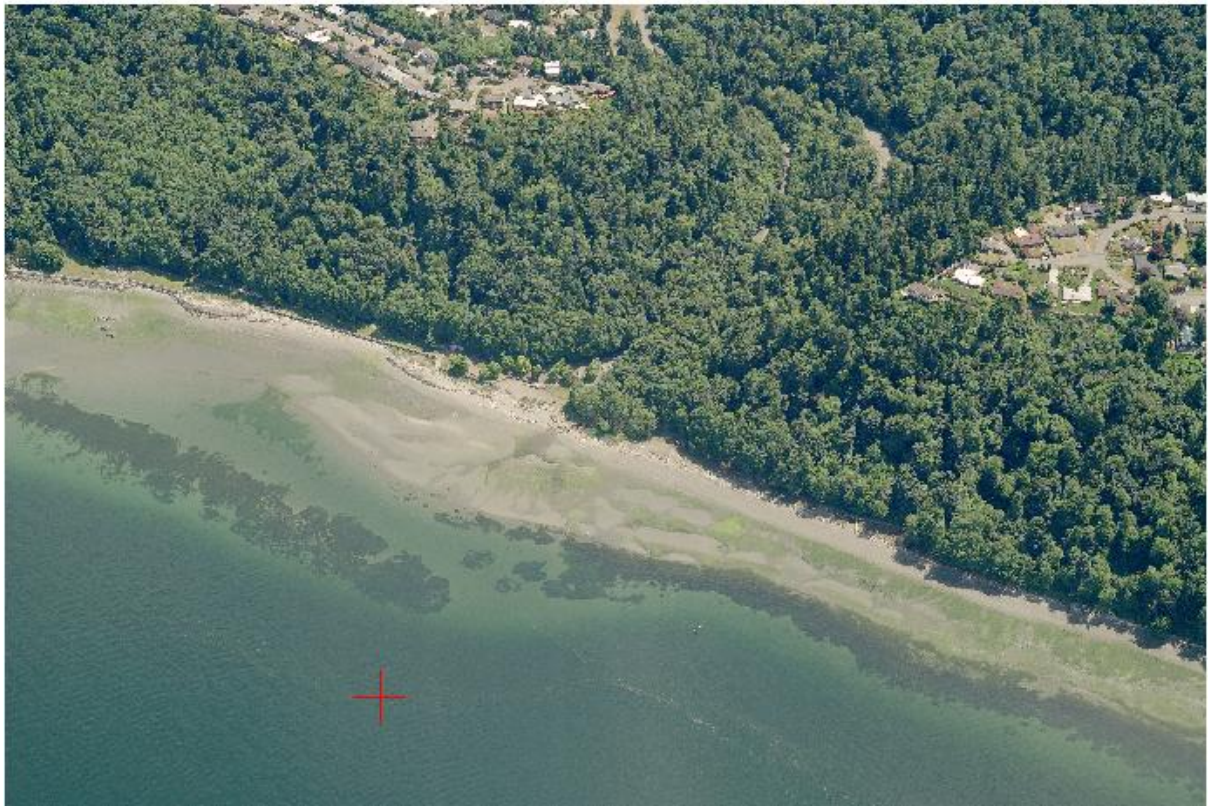
A high stream gradient limits opportunities for salmonids in Seola Creek and the unnamed tributaries within Reach M1. Salmon Creek historically had coho salmon (*Oncorhynchus kisutch*) present. A private structure near the mouth of Salmon Creek confines the channel and may impede fish passage to habitat upstream.

The physical separation of marine waters from the upland resulting from the armoring of shorelines limits the utilization of the transitional intertidal habitat; however, within Reach M1, there are several areas of quality habitat for shoreline-dependent animals along the marine shoreline. Below the ordinary high water mark, the entire reach is mapped as having geoduck (*Panopea abrupta*) beds. Eelgrass (*Zostera* sp.) patches are present as a sparse fringe along the reach and provide habitat for fish spawning, juvenile fish, and invertebrates. The southernmost

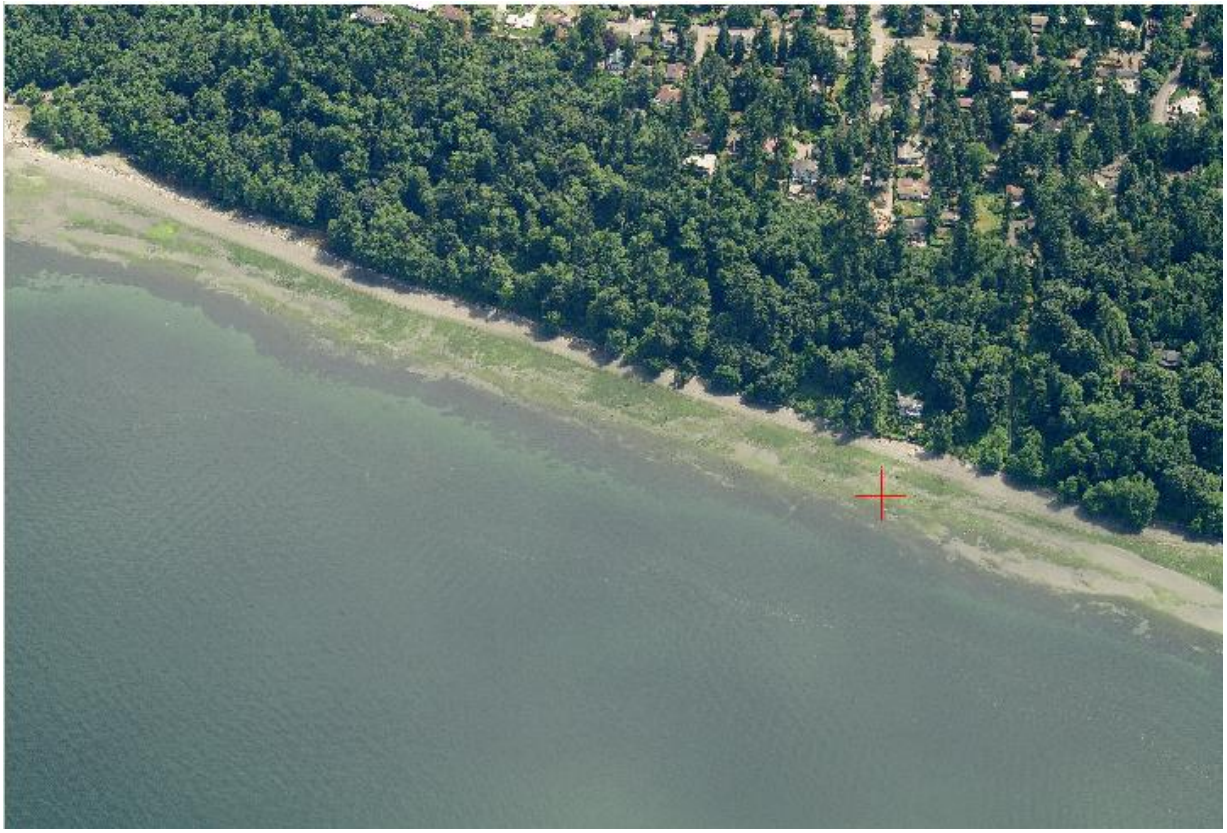
end of Reach M1 is mapped having surf smelt (*Hypomesus pretiosus*) spawning habitat. All of these areas are considered Fish and Wildlife Habitat Conservation Areas, a Critical Area type. In addition, estuarine wetlands associated with the marine aquatic bed are considered Category 1 wetlands.

2.1.2 Reach M2

Reach M2 is a marine shoreline reach comprised of Seahurst Park and the relatively undeveloped shoreline south of the park to SW 149th Street or the northern edge of resumed shoreline development. Reach M2 is 1.21 miles long. Historically, Reach M2 included areas of feeder bluff, potential feeder bluff, and exceptional feeder bluff, some of which has now been modified. An accretion shoreform is present along most of its north end.



Reach M2 (Seahurst Park)



Reach M2 (Seahurst Park, South)

Additional summary information for Reach M2 is presented in Table 2.3.

Table 2.3. Reach M2 Summary.

Total Acreage/ Land Use[1]	Stream Discharges	Public Shoreline Access	Hazard Areas	Habitat/Habitat Potential
28.72 acres Park: 78% Single-family: 14% Vacant: 9%	Unnamed tributaries	Seahurst Park, Eagle Landing Park	Landslide, Flood	Wetlands, Stream, Fish and Wildlife Areas (bald eagle, forage fish, shellfish, eelgrass, Urban Natural Open Space)

[1] Percentages may not total 100 percent due to rounding during GIS analysis.

Current Land Use

Nearly 80 percent of Reach M2 is park, the majority of which is the shoreline of the 152-acre Seahurst Park. To the south of Seahurst Park is a smaller public park, the 5-acre Eagle Landing Park. This publicly owned land is set aside for passive recreation and conservation. Seahurst Park is currently in the process of redevelopment and restoration of the shoreline area. The second highest percentage of land use is single-family residential, with 14 percent, and the remainder of the reach is vacant. Unlike the other marine reaches, the majority of the single-family lots within Reach M2 do not extend far into the intertidal zone.

Hydrologic Function

Historically, much of the shoreline in Reach M2 incorporated bulkheads or some type of armoring; however, restoration efforts in the publicly-owned parks have been focused on reestablishing the shorelines' natural hydrology through removal of this armoring. As described in Section 2.1.1 for Reach M1, armoring limits the amount of both physical and biological interchange that can occur between the upland and the water. However, in areas where a more natural hydrology has been restored (such as areas within Seahurst Park), the shoreline allows for sediment transport, wave attenuation, and redistribution of organic materials (including large woody debris) across all tidal elevations. Additionally, the single-family lots between Seahurst Park and Eagle Landing Park have very little armoring.

Water flows from the upland onto the marine shoreline of Reach M2 through culverts that have been installed beneath parking lots and road fill embankments, draining water through or under bulkheading. Most of these modifications to drainage courses within Seahurst Park were made in the early 1970s by King County.

Approximately 30 percent of Reach M2 is mapped within the 100-year floodplain. As explained in Section 2.1.1, armoring of shorelines can intensify the impacts of flooding, as armoring inhibits the natural inundation and recession of floodwater.

Vegetation Function

Reach M2 has the largest area of native or unaltered shoreline vegetation of any of the shoreline reaches. The vegetation along the shoreline of the parks provides a source for large woody debris and other organic material that will enter the water, as well as overwater shading. Vegetation located upland of armored shorelines does not function to attenuate wave energy; however, the vegetation of the unaltered or restored shorelines within the reach aids in sediment removal, stabilization, and habitat for insects that serve as a supplemental food source.

As with much of the marine shorelines in the City, Seahurst Park is entirely flanked on the upland side with a landslide hazard area. The restoration and conservation of native vegetation that has occurred in or is planned for Reach M2 decreases the amount of erosion that occurs and could aid in decreasing the occurrence of landslides.

Other Habitat Function

Reach M2 has several important Critical Area types represented within the reach. Two large stream systems dominate the reach, with associated buffers. The riparian ravines surrounding the streams are mapped as Urban Natural Open Space, providing habitat to wildlife and fish species as well as plant diversity.

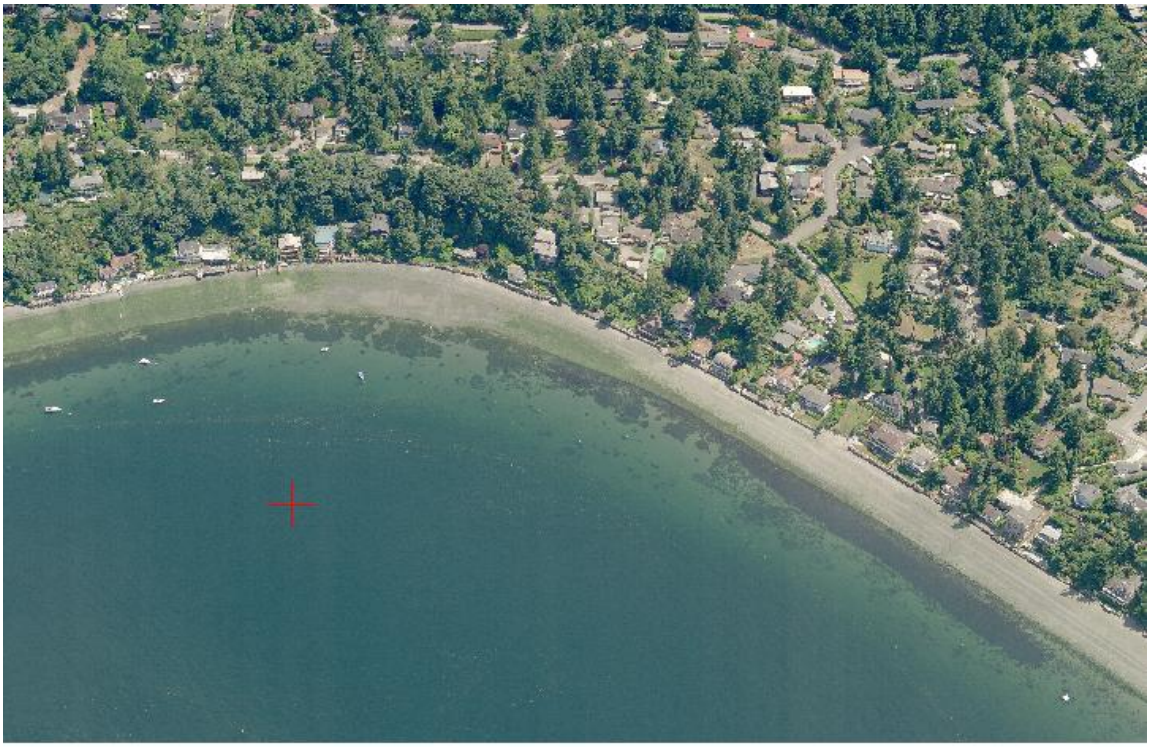
The streams within Reach M2 are high gradient, incised streams, with salmonid habitat limited to the lowest reaches. The southern stream system has some habitat available at the toe of the slope incline. The northern stream system has been modified to accommodate the fish acclimation facilities at the Marine Occupational Center in the North end of the park. These facilities rear coho salmon as part of the Highline School District marine science curriculum.

Below the ordinary high water mark, the entire reach is mapped as having geoduck beds. Eelgrass patches are present as a sparse fringe along the reach. Most of Reach M2 has surf smelt spawning habitat and a portion of the intertidal in front of the park has been mapped as Pacific sand lance (*Ammodytes hexapterus*) spawning habitat. All of these areas are considered Fish and Wildlife Habitat Conservation Areas, a Critical Area type. In addition, estuarine wetlands associated with the marine aquatic bed are considered Category 1 wetlands. A bald eagle (*Haliaeetus leucocephalus*) nest located outside of the shoreline zone near the south end of Reach M2 has a buffer for nest and forage area protection that extends into the shoreline zone and occupies nearly half (the southern half) of Reach M2. The nest is located within the boundaries of Eagle Landing Park.

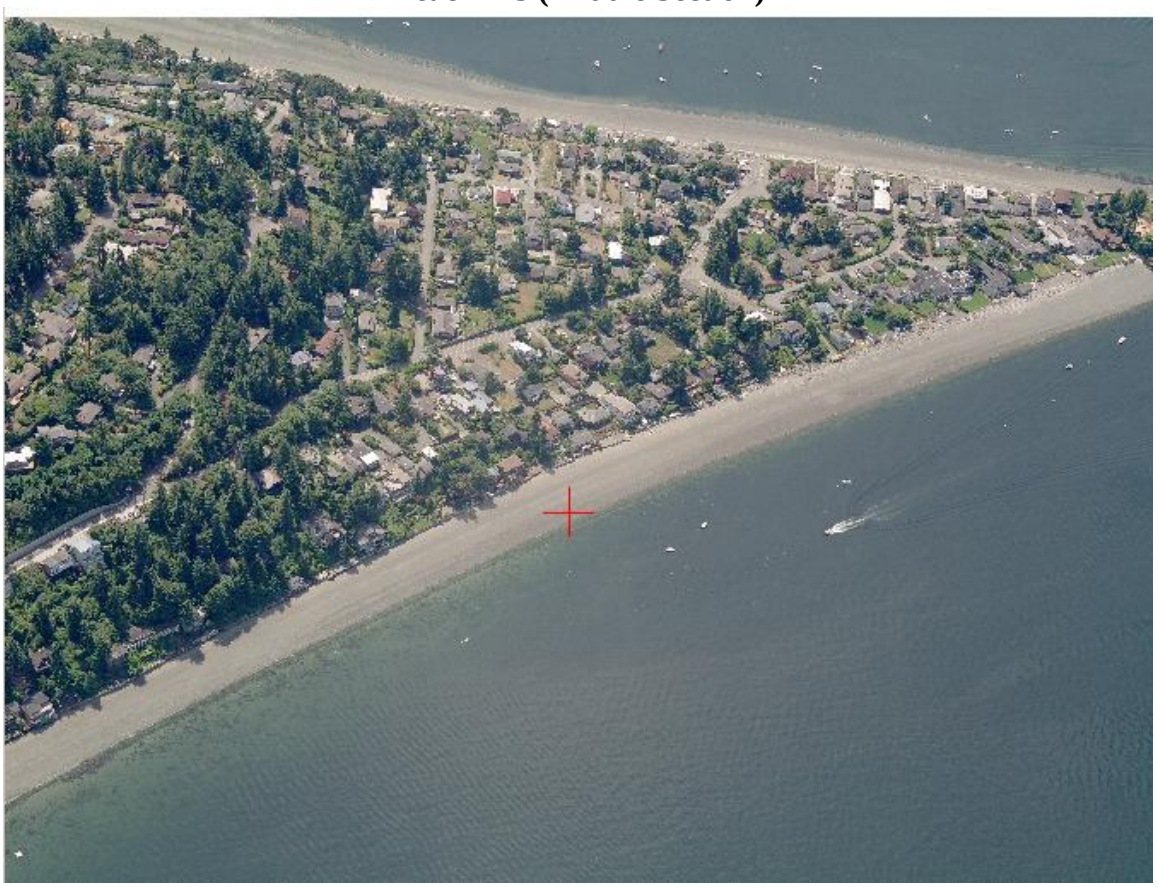
2.1.3 Reach M3

Marine shoreline Reach M3 is the longest shoreline reach within the City of Burien, delineated by the increased residential development at the south end of Reach M2 and the tip of Three Tree Point at the south end of the reach. Reach M3 is 1.75 miles long. Historically, Reach M3 (KI-7-2) included feeder bluff and potential feeder bluff areas alternating with accretion shoreforms. The bluffs in this reach have been entirely modified, as have some of the accretion shoreforms.

Reach M3 (North)



Reach M3 (Middle Section)



Reach M3 (South Portion)

Additional summary information for Reach M3 is presented in Table 2.4.

Table 2.4. Reach M3 Summary.

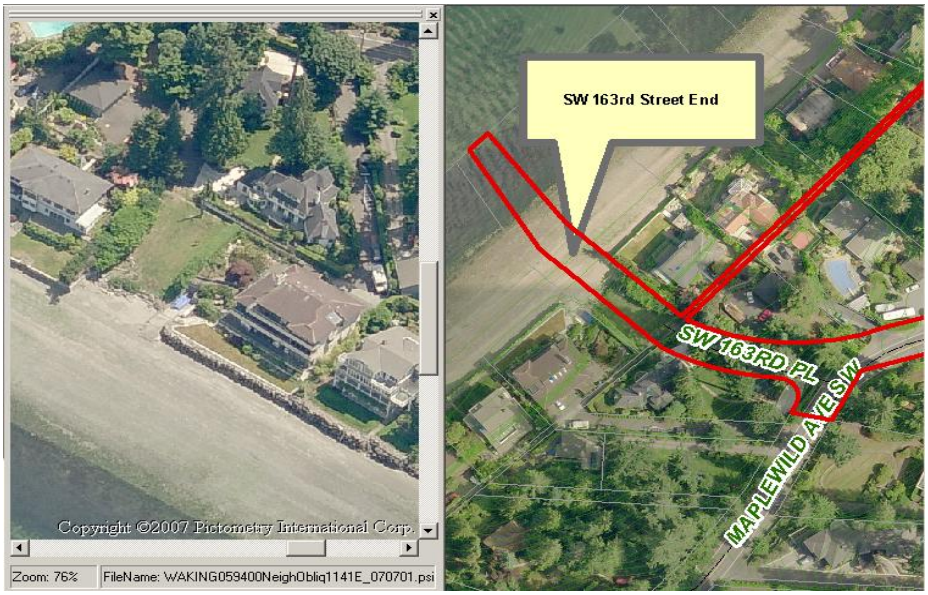
Total Acreage/ Land Use[1]	Stream Discharges	Public Shoreline Access	Hazard Areas	Habitat/Habitat Potential
40.23 acres Single-family: 87% Vacant: 12% Tracts/Other: 1% Low Density MFR: 0.4%	Unnamed tributaries	Street ends (several)	Landslide, Seismic, Flood	Wetlands, Stream, Fish and Wildlife Areas (bald eagle, forage fish, shellfish, eelgrass, kelp, Urban Natural Open Space)

[1] Percentages may not total 100 percent due to rounding during GIS analysis.

Current Land Use

Land use in Reach M3 is developed single-family residential, with 87 percent of the shoreline developed in that land use category. The remaining areas of the reach are vacant.

The following aerial photos depict the public access points available from publically owned street ends.



Public Access Points

Hydrologic Function

The marine shoreline of Reach M3 is hardened with private bulkheads and numerous private boat ramps that affect littoral drift and longshore migration during most tidal stages. Reach M3 also has several single-family docks. Hydrologic functions, including sediment transport, wave attenuation, and redistribution of organic materials along the shoreline, are decreased by the presence of these artificial structures.

Several unnamed tributaries flow into Reach M3, and stormwater drains onto the shoreline through culverts running under or through bulkheads.

Twenty-six percent of Reach M3 is mapped as 100-year floodplain. As addressed in previous sections, armoring of the shoreline can hinder the flow of floodwaters to and from the shoreline.

Vegetation Function

The majority of the shoreline is residential; therefore, most of the vegetation within the Reach M3 shoreline consists of highly altered landscapes. Yards maintained with chemical fertilizers and herbicides can increase the nutrient and toxic load into the shoreline. Further, a decrease in the amount of native vegetation decreases the function of the shoreline, reducing its capacity to attenuate wave energy, stabilize sediments, and provide organic materials. However, any trees located along the shoreline can improve habitat conditions by providing overwater shading.

Removal of large amounts of vegetation and replacement with vegetation not as suited for the environment can increase erosion. Increases in erosion can increase the probability of landslides. The entire upland area of Reach M3 is mapped a landslide hazard area.

Other Habitat Function

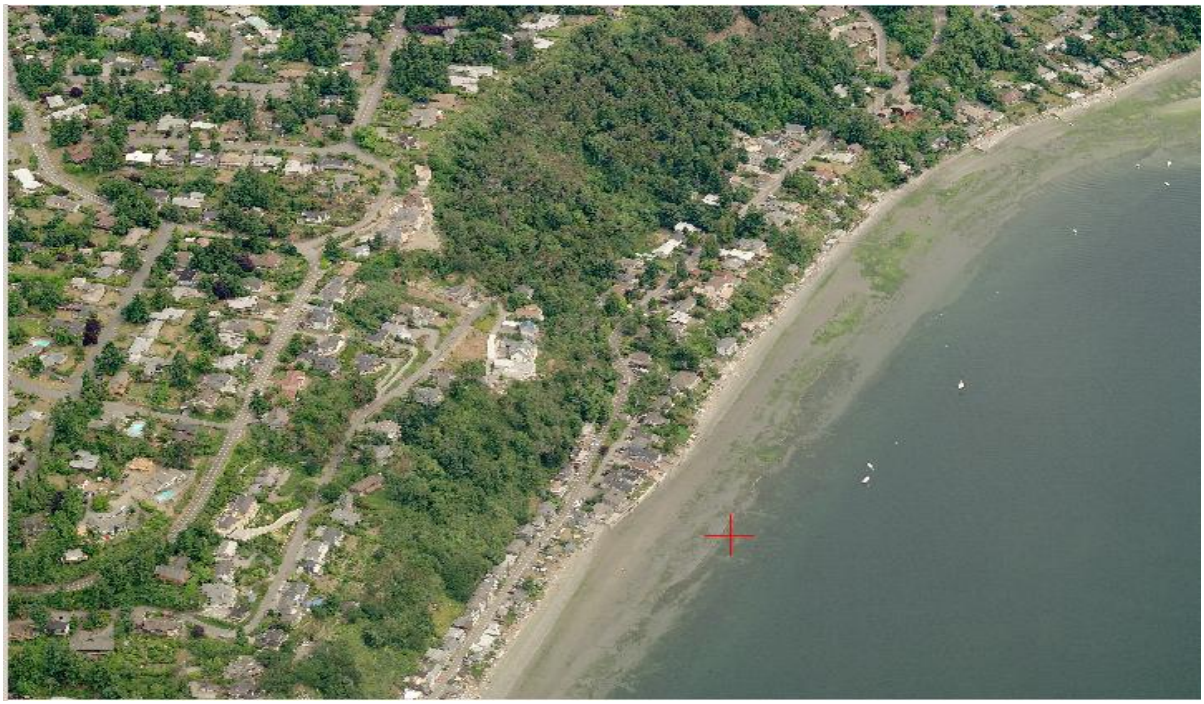
Critical Areas within Reach M3 include several small unnamed tributaries to Puget Sound and their associated buffers. The forested ravines associated with these streams are mapped as Urban Natural Open Space, a Priority Habitat in Washington State.

High stream gradients limit opportunities for salmonids in the unnamed tributaries within Reach M3. The intertidal areas used by juvenile salmon are separated from uplands functions by the high intensity of vertical bulkheads and the nearshore vegetation maintained in a highly altered (manicured) state. Despite the separation of upland and marine waters resulting from the armoring of shorelines, there are several Fish and Wildlife Habitat Conservation Areas located within Reach M3. Below the ordinary high water mark, almost the entire reach is mapped as having geoduck beds, which extend south almost to the tip of Three Tree Point. Eelgrass patches are present as a sparse fringe along the reach, and kelp (order Laminariales) beds are mapped within this reach. The southern half of Reach M3 is mapped as having surf smelt spawning habitat, overlaying a small reach of Pacific sand lance spawning habitat near SW 156th Street. The buffer associated with a bald eagles nest in Reach M2 extends into Reach M3 to approximately SW 156th Street. In addition, estuarine wetlands associated with the marine aquatic bed are considered Category 1 wetlands.

2.1.4 Reach M4

Reach M4 is similar to Reach M3 in that it is characterized by consistent residential development with a south-facing aspect. The reach extends from the tip of Three Tree Point to the southern city limits. Reach M4 is 1.44 miles long. Historically, Reach M4 was feeder bluff, which has subsequently been modified, and an accretion shoreform that is still functioning despite shoreline modifications.

Reach M4 (East)



Reach M4 (Looking South)

Additional summary information for Reach M4 is presented in Table 2.5.

Table 2.5. Reach M4 Summary.

Total Acreage/ Land Use[1]	Stream Discharges	Public Shoreline Access	Hazard Areas	Habitat/Habitat Potential
22.41 acres Single-family: 91% Low Density MFR: 5% Vacant: 3% Commercial: 1%	Unnamed tributaries	Street end (one)	Landslide, Seismic, Flood	Wetlands, Stream, Fish and Wildlife Areas (forage fish, shellfish, eelgrass)

[1] Percentages may not total 100 percent due to rounding during GIS analysis.

Current Land Use

Land use in Reach M4 is developed single-family residential, with 91 percent of the shoreline developed in that land use category. The remaining areas of the reach are split between low density multifamily use (4.99 percent), vacant (2.65 percent), and commercial use (1.23 percent). Reach M4 is characterized as having narrower parcels than the other marine reaches, which extend into the intertidal area south of Three Tree Point.

The street end access to the beach is shown in the following photos; however, parking restrictions greatly limit ease of use.

Street End Access to the Beach

Hydrologic Function

As with the majority of the other marine reaches, the shoreline of Reach M4 is hardened with private bulkheads and a few private boat ramps that affect littoral drift and longshore migration during most tidal stages. Reach M4 also has several single-family docks. These alterations to the shoreline affect the hydrology of the reach, as described in Section 2.1.1 through Section 2.1.3.

Upland drainage into the reach flows through culverts and from several unnamed tributaries. SW 172nd Street parallels the shoreline near most of the reach immediately behind the small residential (garage) structures along the beach; stormwater runoff from the road enters Puget Sound with no opportunity for treatment.

Forty-eight percent of Reach M4 is mapped as 100-year floodplain. As discussed previously, armoring can reduce the ability of the shoreline to accommodate floodwater.

Vegetation Function

Land use within Reach M4 is similar to that within the other highly modified shorelines discussed above (Reach M1 and Reach M3); therefore, the same limitations on shoreline vegetation function exist in Reach M4 as do in the other marine reaches (please see Sections 2.1.1 and 2.1.3 for more details).

Removal or alteration of vegetation can contribute to erosion, increasing the chance for landslides. The upland area of Reach M4 is mapped a landslide hazard area; the soils surrounding Three Tree Point and immediately south are mapped as a seismic hazard zone.

Other Habitat Function

Reach M4 includes a few small unnamed tributaries to Puget Sound and their associated buffers. These are very high gradient streams with no associated Urban Natural Open Space. Although none are known to be salmon-bearing streams, they have the potential to provide habitat to other fish species.

The intertidal areas used by juvenile salmon are separated from upland functions by the high intensity of vertical bulkheads and the nearshore vegetation maintained in a highly altered (manicured) state. This separation limits the function provided by the shoreline.

Below the ordinary high water mark, the entire reach is mapped having geoduck beds. Eelgrass patches are present as patchy beds along the Reach M4 shoreline. A small segment of the reach is identified as Pacific sand lance spawning habitat. All of these areas are considered Fish and Wildlife Habitat Conservation Areas, a Critical Area type. In addition, estuarine wetlands associated with the marine aquatic bed are considered Category 1 wetlands.

2.2 Freshwater Reaches

According to WAC 173-26-201(3)(d)(i)(C), shoreline ecological functions in lakes include, but are not limited to:

- Hydrologic – Storing water and sediment, attenuating wave energy, removing excessive nutrients and toxic compounds, recruitment of large woody debris and other organic material.
- Shoreline vegetation – Maintaining temperature, removing excessive nutrients and toxic compound, attenuating wave energy, sediment removal and stabilization, and providing woody debris and other organic matter.

- Hyporheic functions – Removing excessive nutrients and toxic compound, water storage, support of vegetation, and sediment storage and maintenance of base flows.
- Habitat for aquatic and shoreline-dependent birds, invertebrates, mammals, amphibians, and anadromous and resident native fish – Habitat functions may include, but are not limited to, space or conditions for reproduction, resting, hiding and migration, and food production and delivery.

2.2.1 Reach LB

Reach LB consists of the entire shoreline of Lake Burien and is the only freshwater shoreline reach in the city that meets the State's definition of "shorelines of the state." The Lake Burien perimeter is approximately 1.17 miles long.

Lake Burien (View Looking West)

Lake Burien (View Looking East)

Additional summary information for Reach LB is presented in Table 2.6.

Table 2.6. Reach LB Summary.

Total Acreage/ Land Use[1]	Stream Discharges	Public Shoreline Access	Hazard Areas	Habitat/Habitat Potential
28.80 acres Single-family: 87% School: 8% Vacant: 3% Tracts/Other: 1% Low Density MFR: 1%	Unnamed tributaries	None	None	Wetlands, Aquifer Recharge Area

[1] Percentages may not total 100 percent due to rounding during GIS analysis.

Current Land Use

Lake Burien is occupied almost entirely by single-family (87 percent) and multifamily (1 percent) development. The exception is the Ruth Dykeman Children's Center located at the northeast portion of the lake. The density of single-family development along the Lake Burien shoreline is somewhat higher than that along the marine shoreline. Reach LB is almost developed to its maximum potential. Approximately 60 overwater structures are located around

the perimeter of the lake. Additionally, there are approximately 5 overwater structures in the lake that are unattached to the surrounding uplands.

Hydrologic and Hyporheic Function

The shoreline of Reach LB is highly altered and is surrounded almost entirely by privately-owned residences. Given the relatively small size of the lake, there is not much wave action affecting the shoreline; however, the shoreline would effectively attenuate any waves produced in the lake. The lakeshore bank is low bank with a very gentle upland gradient. Flooding along the shoreline of the lake is not a documented problem, as Lake Burien is not located within the 100-year floodplain.

While a system of stormwater drainage pipes has been installed to divert runoff flowing into the lake, several drainage points into the lake remain and the lake still functions as a water storage area. Lake Burien is mapped as an Aquifer Recharge Area, a type of critical area. Alterations to the surface conditions within an Aquifer Recharge Area associated with development, such as changes in impervious surface area, channeling of runoff, and changes in the soils, can affect the rate and quantity of water entering the aquifer. Additionally, contamination of waters within the Aquifer Recharge Area can adversely impact the aquifer.

Vegetation Function

Due to the mostly residential land use surrounding Lake Burien, much of the vegetation within the shoreline of Reach LB consists of manicured lawns. Maintenance of lawns often increases the input of chemicals (fertilizers and herbicides) into the water and limits the input of organic material (including large woody debris) into the lake. However, any trees present contribute to the shading of the shoreline. Due to the topography around Lake Burien, the lack of native vegetation does not greatly increase erosion along the shore; there are no landslide hazard areas associated with the lake.

Other Habitat Function

Lake Burien in its entirety has been rated a Category 2 wetland. The buffer associated with a Category 2 wetland is 100 feet. While there are no Priority Habitat and Species documented within Lake Burien or along the shoreline, wetlands provide habitat for other small mammals, birds, and fish (such as feeding, breeding, and spawning). There is no fish access into Lake Burien; therefore, anadromous salmonids are not expected within the lake.

Table 2.7: Shoreline Master Program Reach Summary.

Reach	Total Parcels (adjacent to OHWM)	Average Setback to SFR	Minimum Setback	% Impervious (between SFR & OHWM)	Area of Structures Beyond OHWM	Average Setback to Accessory Structures	Buoys
M1	67	55.34	1	44%	6,435	N/A	11
M2	14	429.79	50	4%	39	N/A	0
M3	118	68.16	1	22%	1,713	18.8	40
M4	103	82.29	9	52%	503	26.78	46
Lake Burien	67	100	35	5%	28,723	43	2 rafts
TOTALS	369	183.90		31.75%	37,413	44.29	24.25

Based on: July 2007 Aerial Photo

3. Reasonably Foreseeable Future Development and Use of the Shoreline

This section describes the reasonably foreseeable future development and use in each of Burien's five shoreline reaches.

In general, Burien's shorelines have little potential for new future development since they are already largely developed to their current potential. The predominant single-family residential use of the shoreline is not expected to change significantly; therefore, the majority of the reasonably foreseeable future shoreline development activity is expected to consist of the redevelopment of existing structures. Neither activities that would establish a pattern for future development (such as the platting or subdividing of property, laying of utilities, and construction of new neighborhood streets), nor effects of unregulated activities and development exempt from permitting affecting shoreline functions, are expected to occur to a significant extent.

3.1 Reach M1

The zoning designation for Reach M1 is RS 12,000 Residential Single-Family; the comprehensive plan designations for Reach M1 are Low Density Residential Neighborhood and Public Park/Schools/Recreation/Open Space. Additional shoreline development and use information for Reach M1 is summarized in Table 3.1.

Because the comprehensive plan designations closely match current land uses, reasonably foreseeable future use is not expected to change significantly.

Reasonably foreseeable future development in this reach is expected to consist of the redevelopment of existing structures and the possible development of some of the currently vacant parcels (approximately 18). However, the development of the currently vacant parcels is expected to be limited, as they generally have development constraints that would make construction expensive.

Table 3.1. Reach M1 Shoreline Development and Use Summary.

Total Acreage/ Current Land Use[1]	Current Vacant Parcels	Current Zoning Designation(s)	Comprehensive Plan Designation(s)
25.00 acres Single-family: 72% Vacant: 23% Tracts/Other: 4% Low Density MFR: 1% Institutional: 0.01%	Approximately 18 (all privately owned)	RS 12,000 Residential Single-Family	Low Density Residential Neighborhood & Public Park/Schools/Recreation/Open Space

[1] Percentages may not total 100 percent due to rounding during GIS analysis.

3.2 Reach M2

The zoning designation for Reach M2 is RS 12,000 Residential Single-Family; the comprehensive plan designations for Reach M2 are Low Density Residential Neighborhood and Public Park/Schools/Recreation/Open Space. Additional shoreline development and use information for Reach M2 is summarized in Table 3.2.

Because the comprehensive plan designations closely match current land uses, reasonably foreseeable future use is not expected to change significantly.

Reasonably foreseeable future development in this reach is expected to consist of the redevelopment of existing structures and the possible development of some of the currently vacant parcels (approximately 6). However, the development of the currently vacant parcels is expected to be limited, as they generally have development constraints (such as steep slopes) that would make construction expensive. Additionally, Seahurst Park is currently in the process of redevelopment and restoration.

Table 3.2. Reach M2 Shoreline Development and Use Summary.

Total Acreage/ Current Land Use[1]	Current Vacant Parcels	Current Zoning Designation(s)	Comprehensive Plan Designation(s)
28.72 acres Park: 78% Single-family: 14% Vacant: 9%	Approximately 6 (all privately owned)	RS 12,000 Residential Single-Family	Low Density Residential Neighborhood & Public Park/Schools/Recreation/Open Space

[1] Percentages may not total 100 percent due to rounding during GIS analysis.

3.3 Reach M3

The zoning designation for Reach M3 is RS 12,000 Residential Single-Family; the comprehensive plan designation for Reach M3 is Low Density Residential Neighborhood. Additional shoreline development and use information for Reach M3 is summarized in Table 3.3.

Because the comprehensive plan designation closely matches current land uses, reasonably foreseeable future use is not expected to change significantly.

Reasonably foreseeable future development in this reach is expected to consist of the redevelopment of existing structures and the possible development of some of the currently vacant parcels (approximately 31). However, the development of the currently vacant parcels is expected to be limited, as they generally have development constraints (such as steep slopes).

Table 3.3. Reach M3 Shoreline Development and Use Summary.

Total Acreage/ Current Land Use[1]	Current Vacant Parcels	Current Zoning Designation(s)	Comprehensive Plan Designation(s)
40.23 acres Single-family: 87% Vacant: 12% Tracts/Other: 1% Low Density MFR: 0.4%	Approximately 31 (1 city-owned, remainder privately owned)	RS 12,000 Residential Single-Family	Low Density Residential Neighborhood

[1] Percentages may not total 100 percent due to rounding during GIS analysis.

3.4 Reach M4

The zoning designation for Reach M4 is RS 12,000 Residential Single-Family; the comprehensive plan designation for Reach M4 is Low Density Residential Neighborhood. Additional shoreline development and use information for Reach M4 is summarized in Table 3.4.

Because the comprehensive plan designation closely matches current land uses, reasonably foreseeable future use is not expected to change significantly.

Reasonably foreseeable future development in this reach is expected to consist of the redevelopment of existing structures and the possible development of some of the currently vacant parcels (approximately 12). However, the development of the currently vacant parcels is expected to be limited, as they generally have development constraints (such as steep slopes).

Table 3.4. Reach M4 Shoreline Development and Use Summary.

Total Acreage/ Current Land Use[1]	Current Vacant Parcels	Current Zoning Designation(s)	Comprehensive Plan Designation(s)
22.41 acres Single-family: 91% Low Density MFR: 5% Vacant: 3% Commercial: 1%	Approximately 12 (2 city-owned, remainder privately owned)	RS 12,000 Residential Single-Family	Low Density Residential Neighborhood

[1] Percentages may not total 100 percent due to rounding during GIS analysis.

3.5 Reach LB

The zoning designation for Reach LB is RS 7,200 Residential Single-Family; the comprehensive plan designations for Reach LB are Moderate Density Residential Neighborhood and Special Planning Area 2. Additional land development and use information for Reach LB is summarized in Table 3.5.

Because the comprehensive plan designations closely match current land uses, reasonably foreseeable future use is not expected to change significantly. Reasonably foreseeable future development in this reach is expected to consist primarily of the redevelopment of existing structures and the possible development of some of the currently vacant parcels (approximately 3). Private docks on Lake Burien are already at a density of close to one per residence, so any development of new docks on Lake Burien would be greatly limited.

Table 3.5. Reach LB Shoreline Development and Use Summary.

Total Acreage/ Current Land Use[1]	Current Vacant Parcels	Current Zoning Designation(s)	Comprehensive Plan Designation(s)
28.80 acres Single-family: 87% School: 8% Vacant: 3% Tracts/Other: 1% Low Density MFR: 1%	Approximately 3 (all privately owned)	RS 7,200 Residential Single-Family & Special Planning Area 2	Moderate Density Residential Neighborhood & Special Planning Area 2

[1] Percentages may not total 100 percent due to rounding during GIS analysis.

4. Beneficial Effects of Any Established Regulatory Programs Under Other Local, State, and Federal Laws

In addition to the Shoreline Management Act, several other established regulatory programs yield beneficial effects on the City's shorelines. Some of these regulatory programs are briefly described below.

4.1 Local Programs and/or Laws

City of Burien Comprehensive Plan

Burien's first comprehensive plan was adopted in November 1997, following months of town meetings, workshops, and public hearings. The plan has been amended several times, most significantly in December 2007 due to growth management requirements for plan updates. The plan is based on the *Burien Vision*, an expression by the community of what the community should be in 20 years. The plan reflects the goals and guidelines of Washington's 1990 Growth Management Act (see below). A major plan concept is the creation of a sustainable community (a community that is socially, economically, and environmentally healthy).

City of Burien Municipal Code

There are several sections of the Burien Municipal Code (BMC) with provisions that specifically apply to Burien shoreline areas. BMC Title 19 is the zoning code that implements the City's comprehensive plan. The zoning code contains numerous regulations with beneficial effects on Burien's shorelines, including lot coverage, building height, and landscaping. It also includes critical areas regulations that are largely incorporated into the shoreline master program. BMC Title 17 contains regulations regarding subdivision of land and BMC Chapter 15.55 addresses flood damage prevention. Chapter 7.30 contains rules governing use of park facilities that specify prohibited activities in the marine reserve areas.

King County Countywide Planning Policies

In order to effectively balance land use, infrastructure, and finance between a county and its cities, the Growth Management Act requires that an overall vision be established through a collaborative planning process involving the county and its cities. This process, formalized as the King County Countywide Planning Policies, is intended to serve as a framework for the development of each jurisdiction's comprehensive plan, ensuring consistency between a county's comprehensive plan and the comprehensive plans of the incorporated jurisdictions within its boundary.

4.2 State Programs and/or Laws

Growth Management Act

Many of Washington's cities and counties, including Burien, plan according to the Growth Management Act (GMA). While the goals and policies of the Shoreline Management Act are themselves a goal of the GMA, other goals of the GMA are relevant in shoreline jurisdictions. Those goals include: "Encourage economic development consistent with resources and facilities throughout the state," and "Protect the environment and enhance quality of life." To meet the goals of the GMA, jurisdictions planning under the GMA are required to designate and protect critical areas and use the best available science in developing policies and regulations to protect their functions and values. Also, the land use element of comprehensive plans is required to consider stormwater management and discharges into waters of the state.

State Environmental Policy Act

The State Environmental Policy Act (SEPA) aims to maintain and improve environmental quality by requiring procedures designed to ensure governmental agencies give proper consideration to environmental matters when making decisions on development actions. If initial governmental review of a proposed action indicates the action will have probable and significant adverse environmental impacts, preparation of a detailed environmental impact statement is required. The Burien Municipal Code Title 14 addresses environmental protection through the use of SEPA. The review of projects in the shoreline area triggering SEPA affords Burien's shorelines additional environmental protection.

Water Pollution Control Laws

The state also has water pollution control laws (RCW 90.48) with beneficial effects on Burien's shorelines. In enacting these laws, the legislature declared that it is "public policy of the state of Washington to maintain the highest possible standards to ensure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state of Washington. Consistent with this policy, the state of Washington will exercise its powers, as fully and as effectively as possible, to retain and secure high quality for all waters of the state."

4.3 Federal Programs and/or Laws

Coastal Zone Management Act

The United States Congress recognized the importance of meeting the challenge of continued growth in the coastal zone by passing the Coastal Zone Management Act (CZMA) in 1972. The CZMA, administered by the National Oceanic and Atmospheric Administration's Office of Ocean and Coastal Resource Management, provides for the management of the nation's coastal resources and balances economic development with environmental conservation.

The CZMA outlines two national programs, the National Coastal Zone Management Program and the National Estuarine Research Reserve System. The 34 coastal programs aim to balance competing land and water issues in the coastal zone, while estuarine reserves serve as field laboratories to provide a greater understanding of estuaries and how humans impact them. The overall program objectives of CZMA remain balanced to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone."

Federal Water Pollution Control Act

The objective of the Federal Water Pollution Control Act, commonly referred to as the Clean Water Act, is to restore and maintain the chemical, physical, and biological integrity of the nation's waters by preventing point and nonpoint pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands.

Endangered Species Act

The Endangered Species Act protects shoreline flora and fauna by requiring all projects permitted, funded, or authorized by the federal government to protect threatened and endangered species.

Magnuson-Stevens Fisheries Conservation and Management Act

The Magnuson-Stevens Fisheries Conservation and Management Act requires federally funded, authorized, or permitted projects that may adversely affect Essential Fish Habitat to be consulted upon by National Oceanic and Atmospheric Administration Fisheries.

5. Cumulative Impacts Summary

As discussed in Section 3, Burien's shorelines are already largely developed consistent with the existing comprehensive plan, shoreline program and adopted zoning. Accordingly, shoreline use is not expected to change significantly in the reasonably foreseeable future. In addition, the proposed SMP provides an increased level of protection to shoreline areas and will result in no net loss of shoreline ecological functions. Ongoing shoreline restoration efforts removing portions of the seawall and installing a more natural beach at Seahurst Park as well as the preservation of the nearshore and beach at Eagle Landing Park, should yield beneficial effects on shoreline ecological functions that have been degraded in the past.

It should be noted that there is some potential of further residential development near Lake Burien since the developed lots are typically larger than the current zoning of 7,200 square feet. Any residential redevelopment would be subject to the provisions of this shoreline program with a building setback of 15 feet from the existing 30 buffer. These buffers will apply to any new development in the shoreline area and establish a buffer where one may not exist today. In addition, there is a new requirement that native trees, shrubs and ground cover, instead of lawn, be planted in the shoreline buffer. Under the new regulations, joint use docks are encouraged over single owner/use docks, no new covered moorage would be allowed and the total surface area of any new overwater structure could not exceed 150 square feet of surface area.

In fact, redevelopment along the shorelines can be expected to result in improved ecological functions over the long term with the application of more restrictive development standards at the local, state and federal levels. The installation of seasonal mooring buoys for recreational use will be more closely regulated to minimize damage to underwater lands and marine vegetation.

To minimize the potential for adverse cumulative effects to occur as a result of reasonably foreseeable development activity, and to foster activity that might yield beneficial cumulative effects, the Burien Shoreline Master Program contains several policies and regulations that will require a higher level of environmental protection. Some uses and activities are specifically prohibited in shoreline jurisdiction as shown in BMC 2.30.001 Shoreline Permit Matrix. In addition, new dimensional standards such as a 50 foot marine riparian buffer and a 30 foot Lake Burien riparian buffer combined with a 15 ft. building setback from the buffer and a 150-200 foot vegetation conservation buffer (BMC 20.30.040) will maintain and potentially improve existing shoreline functions.

Current scientific evidence indicates that the length, width, and species composition of a shoreline vegetation community contribute substantively to the aquatic ecological functions. The riparian buffers and vegetation conservation areas will enhance existing fish and wildlife habitat conservation areas that are currently protected by critical area regulations. Having shoreline vegetation will provide many of the following functions depending on the particular species:

bank stabilization; fine sediment filtering; uptake of nutrients and pollutants; large woody debris; shade; habitat; organic inputs. The vegetation conservation areas proposed in this shoreline master program will help assure no net loss of shoreline ecological functions while allowing reasonable use of shoreline properties. In addition, the shoreline policies and regulations, as well as potential non-regulatory measures that could have beneficial effects on shoreline functions degraded due to cumulative impacts, are shown in the following Table 5.1.

Table 5.1. Cumulative Impacts

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
Hydrologic (Hyporheic in freshwater) Storing water & sediment transport (water quality) Attenuating wave energy	Shoreline protection structures (e.g., bulkheads)	<u>Policies:</u> Pgs. IV-15-16 Promote nonstructural measures and locate buildings to avoid the need for armoring. Chp. II REC 7 Trails and pathways on steep shoreline bluffs should be located, designed and maintained to protect bank stability without the need for shoreline armoring. USE 15 City should have development standards that promote the siting of new structures such that they will not require shoreline stabilization and protective measures in the future. USE 16 Shoreline stabilization and protective measures should be limited in number and extent. The use of "soft" stabilization and protective measures, such as vegetation, is preferred over the use of "hard" measures, such as concrete bulkheads. CON 5 New development or redevelopment should avoid or mitigate additional loss of shoreline ecological functions. Developments should be encouraged to improve ecological functions and restore riparian buffers. <u>Regulations:</u> Prohibit breakwaters, jetties and groins. Pgs. IV-16-18 For bulkheads not subject to the single-family residence exemption, a shoreline conditional use permit is required.	Conduct a shoreline stewardship program to educate property owners about nonstructural approaches to shoreline protection. Education on proper lawn care practices.	Some bulkheads will not be constructed because of the new regs. and process. Replacement bulkheads constructed to better avoid adverse impacts on ecological functions and neighboring property. Greater potential for naturalized beaches with LWD and avoid disturbance of littoral drift. Height restriction on bulkheads may result in less wave attenuation. Hydrologic processes along the marine shoreline will likely remain the same with potentially some improvement with bioengineering replacing hard surfaces. Maintenance of base flows in Lake Burien.

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
		Structures shall not result in a net loss of critical saltwater habitat or ecological functions. Construction materials that come in direct contact with the water shall not be treated or coated with toxic materials. Non-structural methods to stabilize the shoreline are used if feasible. Minimize size, height and quantity of material utilized for the bulkhead. Replacement bulkheads are generally not allowed waterward of the existing structure.		
Water Quality	Boat ramps	<u>Regulation:</u> Prohibit construction of new boat ramps. Mooring buoys preferred and installed using DNR approved systems.		By prohibiting any new boat ramps, there will be no change in ecological functions. Removal, instead of repair of an existing boat ramp would result in an improvement to water quality. More mooring buoys could result in a reduction in water quality with more boats stored in the water for a longer period of time.

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
Temperature regulation and aquatic habitat	Overwater structures (e.g. docks)	Policies: Pg. IV-18 Minimize size and need for maintenance dredging. Mooring buoys are the preferred method to provide moorage instead of constructing new residential docks, piers or floats. Regulations: Pg. IV-18 and 19 Shoreline conditional use permit would be required for non-exemption docks. Docks allowed within riparian buffer. No covered moorage is allowed waterward of the ordinary high water mark. Only one dock or float is allowed for each single-family detached residential lot, but not over critical saltwater habitat. Only joint use docks or floats are allowed for attached dwelling unit developments.	Provide information regarding construction alternatives to chemically treated wood.	With replacement of existing docks, there could be an improvement in water quality and habitat with less toxic materials in contact with the water and reduced overwater coverage.
Water Quality	Impervious surface area	Policies: PA 2 Publicly owned shorelines should be limited to water dependent or public recreational uses, otherwise such shorelines should remain protected open space.	Educate public on stormwater and its impact on water quality. Compliance with NPDES Phase II requirements will	Less impervious cover in shoreline jurisdiction over time with redevelopment under new standards. More native plants in shoreline areas and less lawn.

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
		REC 11 Development of recreational facility along City shorelines should implement Low Impact Development techniques whenever feasible. CI 1 Minimize impacts to the topography and other natural characteristics of the shoreline by appropriately locating transportation routes. New roadways for vehicle circulation should be located outside of or minimized within the shoreline area. CI 7 Parking facilities should be located and designed to minimize adverse impacts, including those related to: stormwater runoff; water quality; visual qualities; public access; and vegetation and habitat maintenance. CI 8 Parking should be planned to achieve optimum use. Where possible, parking should serve more than one use. CI 12 Parking for non water dependent uses should be located as far away as feasible from shorelines. CON 5 New development or redevelopment should avoid or mitigate additional loss of shoreline ecological functions. Developments should be encouraged to improve ecological functions and restore riparian buffers. CON 10 The City should provide education and technical assistance on low-impact development techniques. CON 11 Provide public outreach and education about shoreline ecological functions and processes, and engage the public in stewardship and	result in improvements to municipal stormwater operations.	

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
		enhancement activities. CON 12 Encourage minimizing the amount of impervious surfaces in new development through the use of appropriate low-impact development techniques and removing paved areas or using retrofit options in existing developments, where applicable, to minimize runoff. CON 13 The City shall consider the impacts of new development on water quality as part of its environmental review process and require where appropriate any mitigation measures. CON 14 Educate the public on water quality issues and impacts of stormwater flow. <u>Regulations:</u> The removal or modification of existing vegetation and the alteration of topography shall be the minimum necessary. Parking, storage, loading and service areas and facilities serving commercial or office uses should minimize their visual impact on the shorelines, utilize low impact development approaches and be placed a minimum of 200 feet away from the water. 50 ft. marine riparian buffer and a 30 ft. Lake Burien riparian buffer. 15 ft. building setback from the buffer. Establishment of a shoreline vegetation conservation buffer plantings of native trees, shrubs and groundcover plants.		

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
Vegetation Function (water quality improvement)	Clearing of native vegetation	<u>Policies:</u> BMC 20.30.050 CON 5 New development or redevelopment should avoid or mitigate additional loss of shoreline ecological functions. Developments should be encouraged to improve ecological functions and restore riparian buffers. CON 17 The City will protect wetlands by maximizing infiltration opportunities and promoting the conservation of forest cover and native vegetation. CON 19 The City shall consider the impacts of new development on the quality of land, wildlife and vegetative resources as a part of its environmental review process and require any appropriate mitigating measures. Such mitigation may involve the retention of significant habitats. CON 20 The City shall encourage an increase in tree canopies through the addition and the preservation of existing vegetation and use of landscaping as an integral part of development plans. CON 21 The City should require development proposals to include non structural measures to stabilize soils, hillsides, bluffs and ravine sidewalls and to promote wildlife habitat by removing invasive vegetation and retaining or restoring native vegetation. CON 22 The City should consider developing policies that balance the removal of vegetation to	Planting schemes and recommended plant types more widely distributed and utilized by waterfront homeowners.	More native plants in shoreline areas and less lawn.

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
		preserve and enhance views with the need to retain vegetation to promote slope stability and open space. CON 23 Enhance riparian vegetation to improve shoreline ecological functions and processes where possible. CON 29 Native plant communities and wildlife habitats shall be integrated with other land uses where possible. Development shall protect wildlife habitat through site design and landscaping. Landscaping, screening, or vegetated buffers required during development review shall retain, salvage and/or reestablish native vegetation whenever feasible. Development within or adjacent to wildlife habitat networks shall incorporate design techniques that protect and enhance wildlife habitat values. REST 9 Increase availability of large woody debris and opportunities for recruitment in the nearshore zone. REST 10 Restore degraded shoreline areas with native species. <u>Regulations:</u> BMC 20.30.050 Require submittal of a vegetation management plan. The removal or modification of existing vegetation and the alteration of topography shall be the minimum necessary.		

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
		All clearing, grading and vegetation removal shall be the minimum necessary except for the removal of noxious and invasive vegetation using hand equipment if feasible. Place priority on retention of snags and trees that provide overhanging vegetation and/or nesting or perching branches for eagles, other raptors, or priority species. Private access from single-family detached residences shall avoid removal of trees and other woody vegetation when feasible.		
	Chemical fertilizers and herbicides	<u>Policies:</u> CON 11 Provide public outreach and education about shoreline ecological functions and processes, and engage the public in stewardship and enhancement activities. CON 14 Educate individuals and households about different ways to reduce pollution. <u>Regulations:</u> Limit use of pesticides and herbicides within and adjacent to the shoreline jurisdiction. The City shall give preference to mechanical means rather than the use of herbicides for roadside brush control on City streets in shoreline areas.		
Habitat Function	Shoreline protection structures	Under “Hydrologic (and Hyporheic in freshwater) Function”		

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
Habitat Function	Barriers to fish passage	Policies: CON 5 New development or redevelopment should avoid or mitigate additional loss of shoreline ecological functions. Developments should be encouraged to improve ecological functions and restore riparian buffers. REST 6 Improve natural stream and shoreline conditions to an environmental quality level that supports the return and continuation of salmon runs. REST 7 Eliminate fish blockages. Regulations: Navigation channels shall be kept free of hazardous or obstructing uses and activities. Culverts shall be located and installed in accordance with City of Burien standards and specifications.		
	Aquaculture	BMC 20.30.065 Policies: Aquaculture should not be permitted in areas where it would result in a net loss of ecological functions, adversely impact eelgrass and macroalgae. Facilities designed and located to not spread disease. Regulations: Shoreline conditional use permit limited to geoduck harvesting and tribal approved plans for recovery of a native aquatic population.		

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
	Habitat alteration, destruction	<u>Policies:</u> CON 3 The City of Burien's Critical Areas Map shall be used as a reference for identifying the City's critical areas. Other unmapped critical areas do exist throughout the City. Any site containing critical areas are subject to the special development regulations and conditions found in the City's Critical Areas Ordinance. CON 4 Development should be directed toward areas where their adverse impacts on critical areas can be minimized. CON 5 New development or redevelopment should avoid or mitigate additional loss of shoreline ecological functions. Developments should be encouraged to improve ecological functions and restore riparian buffers. CON 6 The City shall maintain a system of development regulations and a permitting system to prevent the destruction of critical areas. Development regulations should at a minimum address wetland protection, aquifer recharge areas important for potable water, fish and wildlife habitat conservation areas, frequently flooded areas, and geologically hazardous areas. CON 7 The City shall require permit review approval before any activity or construction is allowed to occur in, adjacent to, or impact a critical area.		

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
		CON 19 The City shall consider the impacts of new development on the quality of land, wildlife and vegetative resources as a part of its environmental review process and require any appropriate mitigating measures. Such mitigation may involve the retention of significant habitats. CON 24 The City should maintain and enhance existing species and habitat diversity including fish and wildlife habitat that supports the greatest diversity of native species. CON 25 All development activities shall be located, designed, constructed and managed to avoid disturbance of adverse impacts to fish and wildlife resources, including spawning, nesting, rearing and habitat areas and migratory routes. CON 26 Fish and wildlife habitat should be protected, conserved and enhanced, including: a. Habitats for species which have been identified as endangered, threatened, or sensitive by the state or federal government; b. Priority species and habitats listed in the Adopted King County Comprehensive Plan, November 1994; c. Shellfish areas; d. Kelp and eel-grass beds; e. Herring and smelt spawning areas; and f. Wildlife habitat networks designated by the City. CON 27 Fish and wildlife should be maintained through conservation and enhancement of terrestrial, air and aquatic habitats. CON 29 Native plant communities and wildlife		

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
		habitats shall be integrated with other land uses where possible. Development shall protect wildlife habitat through site design and landscaping. Landscaping, screening, or vegetated buffers required during development review shall retain, salvage and/or reestablish native vegetation whenever feasible. Development within or adjacent to wildlife habitat networks shall incorporate design techniques that protect and enhance wildlife habitat values. CON 31 The City shall promote voluntary wildlife enhancement projects which buffer and expand existing wildlife habitat, through educational and incentive programs for individuals and businesses. CON 32 The City shall seek to retain as open space, those areas that provide essential habitat for any rare, threatened or endangered plant or wildlife species. CON 33 The City should maintain, protect and enhance greenbelts riparian corridors and wildlife habit corridors so that the extent and intensity of the built environment is balanced by these natural features. <u>Regulations:</u> Development shall not intrude into or over critical saltwater habitats except when an alternative alignment or location is not feasible. Use the best available technology to avoid adverse impacts. Development of underwater pipelines and cables on		

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
		tidelands is prohibited except for deepwater outfalls and facilities where no other reasonable alternative exists.		
	Habitat fragmentation	Policies: CON 25 All development activities shall be located, designed, constructed and managed to avoid disturbance of adverse impacts to fish and wildlife resources, including spawning, nesting, rearing and habitat areas and migratory routes. CON 26 Fish and wildlife habitat should be protected, conserved and enhanced, including: a. Habitats for species which have been identified as endangered, threatened, or sensitive by the state or federal government; b. Priority species and habitats listed in the Adopted King County Comprehensive Plan, November 1994; c. Shellfish areas; d. Kelp and eel-grass beds; e. Herring and smelt spawning areas; and f. Wildlife habitat networks designated by the City. CON 28 The City should ensure that habitat networks throughout the City are designated and mapped. The network should be of sufficient width to protect habitat and dispersal zones for small mammals, amphibians, reptiles, and birds. These networks should be protected through incentives, regulation and other appropriate mechanisms. Site planning should be coordinated during development review to ensure that connections are made or maintained amongst segments of the network.		Less adverse impact on critical saltwater habitats.

Shoreline Process and Function	Potential Alteration	Proposed SMP Policies & Regs.	Potential Non-Regulatory Measures	Resulting Change
		Regulations: Development shall not intrude into or over critical saltwater habitats except when an alternative alignment or location is not feasible. Utilities shall be placed underground whenever possible.		